Amendments to the Drawings

The attached nine (9) sheets of formal drawings include changes to FIGS. 23a, 23b, 32, 56, 57, 67, 68, 72, 73, 76, 81a, and 97 approved by the Examiner. These sheets replace the original sheets including the same figures.

Attachment: 9 Replacement Sheets

Remarks

A. Pending Claims

Claims 4429-4448 and 5396-5405 are currently pending. Claim 4443 has been amended.

B. Request for Signed Information Disclosure Statements

Applicant respectfully requests signed, initialed copies of the enclosed unacknowledged electronic Information Disclosure Statements. The statements include: U.S. Patent Documents citation numbers P25-P38 and U.S. Published Applications citation number U01 sent on and received by the PTO on February 27, 2003, as indicated on the enclosed acknowledgement receipt EFS ID 23791; U.S. Patent Documents citation numbers 1-2 sent on and received by the PTO on June 23, 2003, as indicated on the enclosed acknowledgement receipt EFS ID 42311; U.S. Patent Documents citation numbers 1-17 sent on and received by the PTO on September 16, 2004, as indicated on the enclosed acknowledgement receipt EFS ID 68648; U.S. Patent Documents citation numbers 1-6 and U.S. Published Applications citation numbers 1-2 sent on and received by the PTO on September 28, 2004, as indicated on the enclosed acknowledgement receipt EFS ID 69375; and U.S. Patent Documents citation numbers 1-6 sent on and received by the PTO on November 1, 2004, as indicated on the enclosed acknowledgement receipt EFS ID 71584.

C. Submission of Replacement Sheets

In the Office Action mailed December 21, 2004, the Examiner indicated approval of the proposed drawing corrections mailed on February 14, 2002. Applicant submits the formal drawings approved by the Examiner (9 sheets of drawings including FIGS. 23a, 23b, 32, 56, 57, 67, 68, 72, 73, 76, 81a, and 97) as an attachment following page 16 of this paper.

D. The Claims Are Neither Anticipated By, Nor Obvious Over Lindquist Pursuant To 35 U.S.C. §102(b) or 35 U.S.C. §103(a), Respectively

Claims 4429-4448 and 5396-5405 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 3,892,270 to Lindquist (hereinafter "Lindquist"). Applicant respectfully disagrees with these rejections.

The standard for "anticipation" is one of fairly strict identity. To anticipate a claim of a patent, a single prior source must contain all the claimed essential elements. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 U.S.P.Q.81, 91 (Fed. Cir. 1986); *In re Donahue*, 766 F.2d 531,226 U.S.P.Q. 619,621 (Fed. Cir. 1985).

In order to reject a claim as obvious, the Examiner has the burden of establishing a *prima facie* case of obviousness. *In re Warner et al.*, 379 F.2d 1011, 154 U.S.P.Q. 173, 177-178 (C.C.P.A. 1967). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP § 2143.03.

The Office Action states:

> Linquist...teaches recovering a gaseous product gas containing hydrocarbon values from a hydrocarbon-containing formation (column 1, lines 6-18). Hydrocarbons can be recovered from heavy-oil fields by partial oxidation and thermal cracking of the hydrocarbons in situ (column 3, lines 6-8). The product gas is composed of various constituents including carbon monoxide, hydrogen, methane and C1 to C10 hydrocarbons, as well as carbon dioxide (column 3, lines 46-49). The product gas constituents may be optimized by controlling the ratio of oxidizing gas to steam (column 4, lines 3-4). The product reasonably appears to be either the same as or an obvious variation of the instantly claimed product because the product of Lindquist is also produced from a coal hydrocarbon formation and in a similar way as compared to the claimed product.
>
> In the event any difference can be shown for the product of claims 4429-4448 and 5396-5405, as opposed to the product taught by Lindquist, such

differences would have been obvious to one of ordinary skill in the art as a routine modification of the product in the absence of showing unexpected results.

Independent claims 4429, 5396, and 5401 describe a mixture produced from a hydrocarbon containing formation including, but not limited to: "ammonia and water, wherein greater than about 0.5 % by weight of the mixture comprises ammonia".

Regarding the demonstration described beginning in column 5, Lindquist states: "Periodic samples were taken of the gas and liquid products for later analysis.... A typical gas composition consisted of 7 percent methane, 1.7 percent ethane, 12 percent carbon monoxide, 2 percent hydrogen, with the balance carbon dioxide." (Lindquist, col. 6, lines 48-60) Thus, Lindquist teaches a gas product that includes only methane, ethane, carbon monoxide, hydrogen, and carbon dioxide. Lindquist also states: "Condensate sample yield analysis is shown in Table II." (Lindquist, col. 6, lines 60-61) The "Detailed Composition Summary" in Table II indicates that 100 volume percent of the condensate sample is made up of various compounds with carbon numbers ranging from C_3 to C_{12}. Thus, Lindquist does not appear to teach or suggest that any portion of the gas or liquid product includes ammonia. Applicant respectfully requests removal of the rejections of claims 4429, 5396, and 5401.

Claim 4429 describes a combination of features including: "wherein greater than about 10% by volume at 25 °C and one atmosphere absolute pressure of the non-condensable hydrocarbons and H_2 comprises H_2".

Lindquist states: "The ratio of carbon monoxide to carbon dioxide and the volume percentage of C_1 and C_2 hydrocarbons to the total product gas are important." Lindquist (col. 4, lines 48-51) Thus, Lindquist appears to give gas composition in volume percent. The typical gas composition noted by Lindquist (col. 6, lines 57-60) appears to teach less than 10% H_2 by volume of the non-condensable hydrocarbons and H_2. Furthermore, Lindquist states: "It is desirable to maximize the Btu value of the product gas. This is done by optimizing production of methane relative to carbon monoxide and hydrogen. In maximizing production of methane, the

reactions are favored by lower temperatures and higher space rates (short residence time of the product gas in the high-temperature zone)." (Lindquist, col. 3, lines 52-58) Thus, Lindquist does not appear to teach or suggest increasing a relative amount of H_2 in the product gas.

Claims 4430 and 5397 describe a combination of features including: "wherein the non-condensable hydrocarbons further comprise hydrocarbons having carbon numbers of less than 5, and wherein a weight ratio of the hydrocarbons having carbon numbers from 2 through 4 to methane in the mixture is greater than approximately 1." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claims. Applicant respectfully requests removal of the rejection of claims 4430 and 5397.

Claims 4431 and 5398 describe a combination of features including: "wherein greater than about 0.1 % by weight and less than about 15 % by weight of the condensable hydrocarbons are olefins." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claims. Applicant respectfully requests removal of the rejection of claims 4431 and 5398.

Claims 4432 and 5400 describe a combination of features including: "wherein a molar ratio of ethene to ethane in the non-condensable hydrocarbons is greater than about 0.001, and wherein a molar ratio of ethene to ethane in the non-condensable hydrocarbons is less than about 0.15." Lindquist states: "A typical gas composition consisted of 7 percent methane, 1.7 percent ethane, 12 percent carbon monoxide, 2 percent hydrogen, with the balance carbon dioxide." (Lindquist, col. 6, lines 57-60) Lindquist does not appear to teach or suggest the presence of ethene in the product gas. Applicant respectfully requests removal of the rejection of claims 4432 and 5400.

Claims 4433 and 5402 describe a combination of features including: "wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is nitrogen." Lindquist does not appear to teach or suggest at least the above-quoted features in

combination with other features of the claims. Applicant respectfully requests removal of the rejection of claims 4433 and 5402.

Claims 4434 and 5403 describe a combination of features including: "wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is oxygen." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claims. Applicant respectfully requests removal of the rejection of claims 4434 and 5403.

Claims 4435 and 5404 describe a combination of features including: "wherein less than about 1 % by weight, when calculated on an atomic basis, of the condensable hydrocarbons is sulfur." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claims. Applicant respectfully requests removal of the rejection of claims 4435 and 5404.

Claim 4436 describes a combination of features including: "wherein about 5 % by weight to about 30 % by weight of the condensable hydrocarbons comprise oxygen containing compounds, and wherein the oxygen containing compounds comprise phenols." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4436.

Claim 4437 describes a combination of features including: "wherein greater than about 20 % by weight of the condensable hydrocarbons are aromatic compounds." Table II of Lindquist indicates that aromatics account for 0.25 volume percent of the condensate sample. Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4437.

Claim 4438 describes a combination of features including: "wherein less than about 5% by weight of the condensable hydrocarbons comprises multi-ring aromatics with more than two

rings." Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4438.

Claim 4439 describes a combination of features including: "wherein less than about 0.3 % by weight of the condensable hydrocarbons are asphaltenes." Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4439.

Claim 4440 describes a combination of features including: "wherein about 5 % by weight to about 30 % by weight of the condensable hydrocarbons are cycloalkanes." Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4440.

Claim 4441 describes a combination of features including: "wherein the H_2 is less than about 80 % by volume at 25 °C and one atmosphere absolute pressure of the non-condensable hydrocarbons and H_2." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4441.

Claim 4442 describes a combination of features including: "wherein the condensable hydrocarbons further comprise sulfur containing compounds." Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4442.

Claims 4443, 5399, and 5405 describe a combination of features including: "wherein at least a portion of the ammonia is used to produce fertilizer." Lindquist does not appear to teach or suggest producing ammonia or fertilizer. Applicant respectfully requests removal of the rejection of claims 4443, 5399, and 5405.

Claim 4444 describes a combination of features including: "wherein less than about 5% of the condensable hydrocarbons have carbon numbers greater than 25." Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4444.

Claim 4445 describes a combination of features including: "wherein the condensable hydrocarbons comprise olefins, wherein greater than about 0.001 % by weight of the condensable hydrocarbons comprise olefins, and wherein less than about 15% by weight of the condensable hydrocarbons comprise olefins." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4445.

Claim 4446 describes a combination of features including: "wherein the condensable hydrocarbons comprise olefins, wherein greater than about 0.001 % by weight of the condensable hydrocarbons comprise olefins, and wherein less than about 10% by weight of the condensable hydrocarbons comprise olefins." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4446.

Claim 4447 describes a combination of features including: "wherein the condensable hydrocarbons comprise oxygenated hydrocarbons, and wherein greater than about 1.5 % by weight of the condensable hydrocarbons comprises oxygenated hydrocarbons." Lindquist does not appear to teach or suggest at least the above-quoted features in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4447.

Claim 4448 describes a combination of features including: "wherein the condensable hydrocarbons further comprise nitrogen containing compounds." Lindquist does not appear to teach or suggest at least the above-quoted feature in combination with other features of the claim. Applicant respectfully requests removal of the rejection of claim 4448.

E. 35 U.S.C. §112 Rejections

Claims 4429-4448 and 5396-5405 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Applicant respectfully disagrees with these rejections.

The Office Action states:

> The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
>
> To the extent it could be argued that the claimed composition is novel or unobvious, the claimed subject matter has not be[en] described in the specification in such a way as to enable one skilled in the art to make and/or use the invention, i.e., hydrocarbon formations differ in chemical composition and applicants have not identified the chemical characteristics of the hydrocarbon formation from which the claimed product is derived.

Applicant submits that suitable hydrocarbon formations are described at least from line 29 of page 51 through line 13 of page 56 of the Specification. Applicant respectfully requests removal of the rejection of claims 4429-4448 and 5396-5405.

F. Double Patenting Rejections

Claims 4429-4448 and 5396-5405 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4184-4224 and 4242-4280 of copending Application No. 09/841,127. Claims 4429-4448 and 5396-5405 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4369-4402 of copending Application No. 09/841,240. Claims 4429-4448 and 5396-5405 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4188-4284 of copending Application No. 09/841,310. Applicant does not believe that a terminal disclaimer is needed for the present application and the above-noted applications. Upon allowance of the claims but for

the double patenting rejections, Applicant will provide arguments against the double patenting rejections and/or provide a terminal disclaimer.

G. Additional Comments

Favorable reconsideration is respectfully requested.

Applicant believes no fees are due in association with the filing of this document. If an extension of time is required, Applicant hereby requests the appropriate extension of time. If any fees are required, please appropriately charge those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5659-03700/EBM.

Respectfully submitted,

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